IN THE CLAIMS

A complete listing of the claims is set forth below:

1.   **(Previously Presented)** A computer-implemented method for solving a supply chain planning problem, comprising:

decompositioning said supply chain planning problem into a plurality of independent sub-problems, said supply chain planning problem comprising a plurality of planning problems, at least one of said plurality of planning problems is a service level planning problem, wherein said supply chain planning problem further comprises computing at least one safety stock limit for an item;

providing a plurality of distributed database partitions, each partition of said plurality of distributed database partitions associated with a respective independent sub-problem of said plurality of planning problems;

operating a plurality of processors, each processor of said plurality of processors coupled with a respective partition of said plurality of distributed database partitions;

forming a plurality of distributed sub-problem partitions, each of said distributed sub-problem partitions including a plurality of related items and associated with a respective independent sub-problem of said plurality of planning problems;

loading data into a plurality of distributed database partitions, said data associated with said plurality of related items, and each of said distributed database partitions associated with a respective one of each of said distributed sub-problem partitions; and

solving each of said plurality of said independent sub-problems by each processor of said plurality of processors coupled with said respective partition of said plurality of distributed database partitions, wherein each processor of said plurality of processors is operating in parallel.

2.   **(Previously Presented)** The method of Claim 1, further comprising:

forming a plurality of clusters, each of said clusters including said plurality of related items; and

forming said plurality of distributed sub-problem partitions from said plurality of clusters.

3.   **(Previously Presented)** The method of Claim 1, wherein the number of distributed sub-problems is equal to the number of database partitions.

4.   **(Original)** The method of Claim 1, wherein said plurality of related items are related by one or more pre-defined relationship rules.

5.   **(Previously Presented)** The method of Claim 2, wherein the act of forming said plurality of said clusters further comprises an act of assigning a CLUSTER_ID to each item of said plurality of related items.

6.   **(Previously Presented)** The method of Claim 2, wherein the act of forming a plurality of distributed sub-problem partitions from said plurality of clusters further comprises a~ an act of equally sizing said distributed sub-problem partitions.

7.   **(Previously Presented)** The method of Claim 1, wherein the act of solving each of said plurality of said distributed sub-problems further comprises an act of solving said plurality of independent sub-problems in parallel.

8.   **(Canceled)**

9.   **(Previously Presented)** A computer-implemented method for solving a supply chain planning problem, comprising:

decompositioning said supply chain planning problem into a plurality of independent sub--problems, said supply chain planning problem comprising a plurality of planning problems, at least one of said plurality of planning problems is a service level planning problem, wherein said supply chain planning problem further comprises computing at least one safety stock limit for an item;

providing a plurality of distributed database partitions, each partition of said plurality of distributed database partitions associated with a respective independent sub-problem of said plurality of planning problems;

operating a plurality of processors, each processor of said plurality of processors associated with a respective partition of said plurality of distributed database partitions;

storing data associated with at least one new item in a temporary database location;

forming at least one cluster, said at least one cluster including said data associated with said at least one item;

merging said at least one cluster with at least one cluster associated with at least one distributed sub-problem partition;

loading said data into at least one distributed database partition, said at least one distributed database partition associated with said at least one distributed sub-problem partition; and

solving said at least one independent sub-problem by each processor of said plurality of processors coupled with said respective partition of said plurality of distributed database partitions, wherein each processor of said plurality of processors is operating in parallel.

10.   **(Previously Presented)** A computer-implemented system for solving a supply chain planning problem, comprising:

a storage medium stored therein a plurality of independent sub-problems decomposed from said supply chain planning problem, said supply chain planning problem comprising a plurality of planning problems, at least one of said plurality of planning problems is a service level planning problem, wherein said supply chain planning problem further comprises computing at least one safety stock limit for an item;

a database, said database including a plurality of distributed database partitions, each partition of said plurality of distributed database partitions associated with a respective independent sub-problem of said plurality of planning problems; and

a plurality of processors, each processor of said plurality of processors coupled with a respective partition of said plurality of distributed database partitions, and configured to:

form a plurality of distributed sub-problem partitions, each of said distributed sub-problem partitions including a plurality of related items and associated with a respective independent sub-problem of said plurality of planning problems;

load data into a plurality of distributed database partitions, said data associated with said plurality of related items, and each of said distributed database partitions associated with a respective one of each of said distributed sub-problem partitions; and

solve said plurality of said independent sub-problems by each processor of said plurality of processors coupled with said respective partition of said plurality of distributed database partitions, wherein each processor of said plurality of processors is operating in parallel.

11.   **(Previously Presented)** The system of Claim 10, wherein each processor of said plurality of processors are further configured to:

form a plurality of clusters, each of said clusters including said plurality of related items; and

form said plurality of distributed sub-problem partitions from said plurality of clusters.

12.   **(Previously Presented)** The system of Claim 10, wherein the number of distributed sub-problems is equal to the number of database partitions.

13.   **(Original)** The system of Claim 10, wherein said plurality of related items are related by one or more pre-defined relationship rules.

14.   **(Previously Presented)** The system of Claim 11, wherein each processor of said plurality of processors is further configured to:

assign a CLUSTER_ID to each item of said plurality of related items.

15.   **(Previously Presented)** The system of Claim 10, wherein each processor of said plurality of processors is further configured to:

equally size said distributed sub-problem partitions.

16.   **(Previously Presented)** The system of Claim 10, wherein each processor of said plurality of processors is further configured to:

solve said plurality of independent sub-problems in parallel.

17.   **(Canceled)**

18.   **(Previously Presented)** A computer-implemented system for solving a supply chain planning problem, comprising:

a storage medium stored therein a plurality of independent sub-problems decomposed from the supply chain planning problem, said supply chain planning problem comprising a plurality of planning problems, at least one of said plurality of planning problems a service level planning problem, wherein said supply chain planning problem further comprises computing at least one safety stock limit for an item;

a database, said database comprising a plurality of distributed database partitions and a temporary storage location, each partition of said plurality of distributed database partitions associated with a respective independent sub-problem of said plurality of planning problems; and

a plurality of processors, each processor of said plurality of processors coupled with a respective partition of said plurality of distributed database partitions, and configured to:

store data associated with at least one new item in the temporary database location;

form at least one cluster, said at least one cluster including said data associated with said at least one item;

merge said at least one cluster with at least one cluster associated with at least one distributed sub-problem partition;

load said data into at least one distributed database partition, said at least one distributed database partition associated with said at least one distributed sub-problem partition; and

solve said at least one independent sub-problem by each processor of said plurality of processors coupled with said respective partition of said plurality of distributed database partitions, wherein each processor of said plurality of processors is operating in parallel.

19.   **(Previously Presented)** Software for solving a supply chain planning problem, the software being embodied in computer-readable media and when executed using one or more computers is configured to:

decompose the supply chain planning problem into a plurality of independent sub-problems, said supply chain planning problem comprising a plurality of planning problems, at least one of said plurality of planning problems is a service level planning problem, wherein said supply chain planning problem further comprises computing at least one safety stock limit for an item;

provide a plurality of distributed database partitions, each partition of said plurality of distributed database partitions associated with a respective independent sub-problem of said plurality of planning problems;

operate a plurality of processors, each processor of said plurality of processors coupled with a respective partition of said plurality of distributed database partitions;

form a plurality of distributed sub-problem partitions, each of said distributed sub-problem partitions including a plurality of related items and associated with a respective independent sub-problem of said plurality of planning problems;

load data into a plurality of distributed database partitions, said data associated with said plurality of related items, and each of said distributed database partitions associated with a respective one of each of said distributed sub-problem partitions; and

solve each of said plurality of said independent sub-problems by each processor of said plurality of processors coupled with said respective partition of said plurality of distributed database partitions, wherein each processor of said plurality of processors is operating in parallel.

20.   **(Previously Presented)** The software of Claim 19, when executed further configured to:

form a plurality of clusters, each of said clusters including said plurality of related items; and

form said plurality of distributed sub-problem partitions from said plurality of clusters.

21.   **(Previously Presented)** The software of Claim 19, wherein the number of distributed sub-problems is equal to the number of database partitions.

22.   **(Original)** The software of Claim 19, wherein said plurality of related items are related by one or more pre-defined relationship rules.

23.   **(Original)** The software of Claim 20, wherein forming said plurality of said clusters further comprises assigning a CLUSTER_ID to each item of said plurality of related items.

24.   **(Previously Presented)** The software of Claim 20, wherein forming a plurality of distributed sub-problem partitions from said plurality of clusters further comprises equally sizing said distributed sub-problem partitions.

25.   **(Previously Presented)** The software of Claim 19, wherein solving each of said plurality of said distributed sub-problems further comprises solving said plurality of distributed sub-problems in parallel.

26.   **(Canceled)**

27.   **(Previously Presented)** Software for solving a supply chain planning problem, the software being embodied in computer-readable media and when executed using one or more computers is configured to:

decompose the supply chain planning problem into a plurality of independent sub-problems, said supply chain planning problem comprising a plurality of planning problems, at least one of said plurality of planning problems is a service level planning problem, wherein said supply chain planning problem further comprises computing at least one safety stock limit for an item;

provide a plurality of distributed database partitions, each partition of said plurality of distributed database partitions associated with a respective independent sub-problem of said plurality of planning problems;

operate a plurality of processors, each processor of said plurality of processors coupled with a respective partition of said plurality of distributed database partitions;

store data associated with at least one new item in a temporary database location;

form at least one cluster, said at least one cluster including said data associated with said at least one item;

merge said at least one cluster with at least one cluster associated with at least one distributed sub-problem partition;

load said data into at least one distributed database partition, said at least one distributed database partition associated with said at least one distributed sub-problem partition; and

solve said at least one independent sub-problem by each processor of said plurality of processors coupled with said respective partition of said plurality of distributed database partitions, wherein each processor of said plurality of processors is operating in parallel.

28.   **(Previously Presented)** The method of Claim 1, wherein at least one of said plurality of planning problems is a replenishment planning problem.

29.   **(Previously Presented)** The system of Claim 10, wherein at least one of said plurality of planning problems is a replenishment planning problem.

30.   **(Previously Presented)** The software of Claim 19, wherein at least one of said plurality of planning problems is a replenishment planning problem.